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**VIA E-MAIL AND U.S. MAIL**

Mr. Jac Capp, Branch Chief  
Georgia Department of Natural Resources  
Environmental Protection Division  
Air Protection Branch  
4244 International Parkway, Suite 120  
Atlanta, GA 30354

RE: Plant Washington  
Sandersville, Georgia – Washington County  
Application to Modify Construction Permit  
Permit No. 4911-303-0051-P-01-0

Dear Mr. Capp:

MACTEC Engineering and Consulting, Inc., and Trinity Consultants, on behalf of our client Power4Georgians, LLC (P4G), are providing this submittal for modifying the permit referenced above for construction of Plant Washington, a coal-fired power plant in Sandersville, Georgia. With this submittal we are requesting that the Environmental Protection Division (EPD) modify the permit to address two issues regarding the case-by-case Maximum Achievable Control Technology (MACT) evaluation for non-dioxin/furan organic and non-mercury metal hazardous air pollutants (HAPs).

**Background**

On April 8, 2010, EPD issued Permit No. 4911-303-0051-P-01-0 to P4G authorizing construction of Plant Washington, a nominal 850 megawatt coal-fired power plant (the Permit). Following issuance of the Permit, several environmental groups filed a petition with the Georgia Office of State Administrative Hearings (OSAH) challenging, among other things, the Permit's case-by-case MACT limits for non-dioxin/furan organic and non-mercury metal HAPs. Although the court ultimately affirmed the Permit in most respects, it agreed with the petitioners' claims regarding both non-dioxin/furan organic and non-mercury metal HAPs, finding that the emissions limitations for filterable particulate matter (PM) (established as a surrogate for non-mercury metal HAPs) and the carbon monoxide (CO) limitations (established as a surrogate for non-dioxin/furan organic HAPs) were not reflective of MACT. Accordingly, the court remanded the Permit to EPD for further consideration of the MACT limits for these two categories of pollutants.<sup>1</sup>

<sup>1</sup> *Fall-Line Alliance for a Clean Environment v. Barnes*, Docket No. OSAH-BNR-1031707-98-Walker, Final Decision (OSAH Dec. 16, 2010); *Fall-Line Alliance for a Clean Environment v. Barnes*, Docket No. OSAH-BNR-1031707-98-Walker, Revised and Interlocutory Decision (OSAH Jan. 18, 2011).

This letter and attachments are submitted in response to the court's remand order and comprise a revised case-by-case MACT analysis addressing non-dioxin/furan organic and non-mercury metal HAPs for Plant Washington.

### **Required Elements of a Case-by-Case MACT Analysis**

The Plant Washington Permit application, dated November 26, 2008, identified the elements of a case-by-case MACT analysis in Section 10. This letter and attachments supplement and amend the earlier case-by-case MACT analysis, as it relates to non-dioxin/furan organic and non-mercury metal HAPs from Plant Washington. All other portions of the November 2008 submittal not hereby amended are incorporated by reference into this letter.

### **EPA's Proposed Electric Generating Unit ("EGU") MACT**

In the period since the Permit was initially issued in April 2010, the regulatory setting has changed substantially. On March 16, 2011, the U.S. Environmental Protection Agency (EPA) issued a proposed rule setting MACT limits for coal-fired electric steam generating units (the "Proposed EGU MACT") under § 112 of the federal Clean Air Act.<sup>2</sup> The Proposed EGU MACT was issued in accordance with a judicial consent decree, which requires EPA to publish a final rule on or before November 16, 2011.

Because the Proposed EGU MACT has not yet been finalized by EPA, P4G remains subject to the requirement to obtain a case-by-case MACT determination for Plant Washington under § 112(g) of the Clean Air Act prior to commencing construction.<sup>3</sup> EPA's Proposed EGU MACT is nevertheless significant. The federal regulations governing case-by-case MACT determinations provide:

If the administrator has either proposed a relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or adopted a presumptive MACT determination for the source category which includes the constructed or reconstructed major source, then the MACT requirements applied to the constructed or reconstructed major source shall have considered those MACT emission limitations and requirements of the proposed standard or presumptive MACT determination.<sup>4</sup>

This requirement that case-by-case MACT determinations consider any proposed MACT standards was reiterated in the preamble to 40 C.F.R. Part 63, Subpart B:

In determining the appropriate level of control, this rule requires consideration of "available information." In some instances, such information sources are readily

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<sup>2</sup> To date, the Proposed EGU MACT has not been published in the Federal Register. A signed version of the proposed rule is currently available on EPA's website: <http://www.epa.gov/ttn/atw/utility/utilitypg.html>.

<sup>3</sup> 42 U.S.C. § 7412(g).

<sup>4</sup> 40 C.F.R. § 63.43(d)(4).

apparent. For example, if a Federal MACT standard has been proposed, but not yet promulgated, the EPA expects that a MACT determination will strongly consider that proposal. (Other information may be available in some cases, for example, based upon public comment on the MACT proposal, but such data would need to be adequate to refute the finding in the proposal).<sup>5</sup>

Thus, while no EGU MACT standard existed when the original case-by-case analysis for Plant Washington was prepared, EPA's recent regulatory action and the applicable state and federal regulations compel P4G and EPD to consider this proposed regulatory action in this case-by-case determination. Accordingly, P4G's amended case-by-case analysis relies upon EPA's Proposed EGU MACT as the starting point for the analysis of the emission limits for non-dioxin/furan organic and non-mercury metal HAPs from Plant Washington.

It is important to note that, prior to promulgating the Proposed EGU MACT, EPA undertook an extensive information gathering effort. In 2009, EPA sent an Information Collection Request (ICR) to hundreds of EGUs. The ICR required the owners or operators of the surveyed EGUs to sample and report emissions of multiple pollutants, including non-dioxin/furan organic and non-mercury metal HAPs. The results of this wide-ranging testing effort, which EPA published on its website in final form on March 16, 2011 (the "ICR Data"),<sup>6</sup> were then used by EPA to develop the emission limits for non-dioxin/furan organic and non-mercury metal HAPs contained in the Proposed EGU MACT. Collectively, P4G's experts have spent hundreds of hours reviewing these new data.

In collecting the ICR Data, EPA identified 1,332 coal- or oil-fired boiler units that generated greater than 25 MW of energy. To derive a MACT floor limit for non-dioxin/furan organic HAPs, EPA identified the 175 newest coal-fired units, which were presumed to be the most efficient. EPA then selected 170 of those units to test for CO, volatile organic compounds (VOCs), and total hydrocarbons (THC). Of the 170 units selected for testing, 50 units were required by EPA to conduct additional tests for polycyclic organic matter (POM), nitrogen oxides (NOx), formaldehyde, methane, oxygen (O<sub>2</sub>), and carbon dioxide (CO<sub>2</sub>).

To derive a MACT floor limit for non-mercury metal HAP emissions, EPA separately selected the 170 coal-fired units with the newest PM controls installed for testing.<sup>7</sup>

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<sup>5</sup> Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources, 61 Fed. Reg. 68,384, 68,394 (Dec. 27, 1996). Because the Proposed EGU MACT has not been published in the Federal Register, EPA has not received formal comments on the proposed rule.

<sup>6</sup> <http://www.epa.gov/ttn/atw/utility/utilitypg.html>.

<sup>7</sup> Information Collection Request For National Emission Standards for Hazardous Air Pollutants (NESHAP) for Coal and Oil Fired Electric Utility Steam Generating Units, Part B of the Supporting Statement, available at [http://www.epa.gov/ttn/atw/utility/g1/eu\\_mact\\_icr\\_part\\_b.pdf](http://www.epa.gov/ttn/atw/utility/g1/eu_mact_icr_part_b.pdf).

## **P4G's Revised Case-By-Case MACT Determination for Non-Dioxin/furan Organic HAPs**

### *Derivation of the MACT Floor*

As noted above, when EPA proposes a MACT standard for a source category, such as the Proposed EGU MACT, the proposed federal standard is necessarily the starting point for a case-by-case MACT determination. In the Proposed EGU MACT, EPA concludes that a work practice standard is the MACT floor for non-dioxin/furan organic HAPs. Consistent with EPA's regulations, P4G has "strongly consider[ed]" EPA's proposed MACT standard and agrees that EPA's proposed work practice standard, in fact, represents the MACT floor for non-dioxin/furan organic HAPs.

EPA's decision to adopt a work practice standard as the MACT floor was based on the fact that modern, highly efficient EGU boilers, such as will be constructed at Plant Washington, emit organic HAPs at very low levels that are frequently below the detection limits of the tests. As EPA explained:

EPA is proposing work practice standards for non-dioxin/furan organic and dioxin/furan organic HAP. The significant majority of measured emissions from EGUs of these HAP were below the detection levels of the EPA test methods, and, as such, EPA considers it impracticable to reliably measure emissions from these units. As the majority of measurements are so low, doubt is cast on the true levels of emissions that were measured during the tests. . . . For the non-dioxin/furan organic HAP, for the individual HAP or constituent, between 57 and 89 percent of the run data were comprised of values below the detection level. Overall, the available test methods are technically challenged, to the point of providing results that are questionable for all of the organic HAP. For example, for the 2010 ICR testing, EPA extended the sampling time to 8 hours in an attempt to obtain data above the MDL. However, even with this extended sampling time, such data were not obtained making it questionable that any amount of effort, and, thus, expense, would make the tests viable. Based on the difficulties with accurate measurements at the levels of organic HAP encountered from EGUs and the economics associated with units trying to apply measurement methodology to test for compliance with numerical limits, we are proposing a work practice standard under CAA section 112(h).<sup>8</sup>

In the preamble to the Proposed EGU MACT, the agency explained that it considered use of CO as a surrogate monitoring pollutant for non-dioxin/furan organic HAPs because CO is generally a good indicator of complete combustion. To that end, the EPA Office of Research and Development conducted a series of pilot tests regarding organic HAPs at the Agency's Multipollutant Control Research Facility (MPCRF). EPA found, however, that "it is very difficult to develop direct correlations between the average concentration of CO and the amount of organics produced during the prescribed sampling period".<sup>9</sup> This was due primarily to the following three reasons:

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<sup>8</sup> Proposed EGU MACT at 366-67.

<sup>9</sup> Proposed EGU MACT at 361.

- 1) The large number of organic compounds that could be produced during incomplete combustion and most being below levels of detection;
- 2) The variability of CO concentrations and the concentration spikes that are produced, making it difficult to compare one unit to another; and
- 3) The fact that some organics are destroyed at elevated flue gas temperatures while CO remains stable.<sup>10</sup>

For these reasons, EPA declined to establish emission limits in the Proposed EGU MACT for individual non-dioxin/furan organic HAPs or to adopt CO as a surrogate for non-dioxin/furan organic HAPs for coal-fired EGU boilers. Instead, EPA established a "work practice standard" for operation of the boilers to ensure that good combustion is occurring, thereby minimizing the amount of organic HAP emitted. The federal Clean Air Act and EPA's regulations allow the agency to establish a work practice standard in lieu of emission limits.<sup>11</sup>

Use of good combustion controls (also termed good combustion practices) have been established for control of non-dioxin/furan organic HAPs. The preamble to the Proposed EGU MACT states:

Good combustion practice (GCP), in terms of combustion units, could be defined as the system design and work practices expected to minimize the formation and maximize the destruction of organic HAP emissions. We maintain that the proposed work practice standards will promote good combustion and thereby minimize the organic HAP emissions we are proposing to regulate in this manner.<sup>12</sup>

Therefore, the Proposed EGU MACT adopts good combustion practices, as implemented through a work practice standard, as the MACT floor for non-dioxin/furan organic HAPs. We (MACTEC and Trinity) have reviewed the ICR Data collected as well as the results of the additional testing EPA conducted set forth in the Proposed EGU MACT. Based on our review of those data and EPA's conclusions in the Proposed EGU MACT, we agree that a work practice standard represents the MACT floor for non-dioxin/furan organic HAPs.

#### *Beyond the Floor*

EPA concluded that it was not appropriate to require additional controls beyond the MACT floor for non-dioxin/furan organic HAPs, explaining that it was "not aware of any measures beyond those proposed here that would result in lower emissions."<sup>13</sup> We concur in EPA's conclusion

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<sup>10</sup> Proposed EGU MACT at 361-63.

<sup>11</sup> 42 U.S.C. § 7412(h); 40 C.F.R. § 63.43(d)(3).

<sup>12</sup> Proposed EGU MACT at 394.

<sup>13</sup> Proposed EGU MACT at 401.

that there are no additional controls beyond the MACT floor that would result in lower emissions of these pollutants.

*P4G's Case-by-Case MACT Proposal for Organic HAPs*

Consistent with EPA's conclusions in the Proposed EGU MACT, P4G proposes work practice standards for non-dioxin/furan organic HAPs. These standards, which are set forth below, are taken directly from the Proposed EGU MACT, Section 63.10021(a)(16)(i) through (vi).

- 1) Inspect the burners, and clean or replace any components of the burner as necessary (burner inspection can be delayed until the next scheduled unit shutdown, but each burner will be inspected at least once every 18 months).
- 2) Inspect the flame pattern, as applicable, and make any adjustments to the burner necessary to optimize the flame pattern. The adjustment will be consistent with the manufacturer's specifications.
- 3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly.
- 4) Optimize total emissions of CO and NOx. This optimization will be consistent with the manufacturer's specifications and the requirements of Permit No. 4911-303-0051-P-01-0.
- 5) Measure the concentration in the effluent stream of CO and NOx in ppm, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
- 6) Maintain on-site and submit, if requested by EPD, an annual report containing the following information:
  - a) The concentrations of CO and NOx in the effluent stream in ppm by volume, and oxygen in volume percent, measured before and after the adjustments of the main boiler.
  - b) A description of any corrective actions taken as a part of the combustion adjustment.
  - c) The type and amount of fuel used over the 12 months prior to an adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period.

P4G proposes to perform each of these activities on an annual basis, unless the specific action could be conducted less frequently (e.g., Item No. 1).

Although P4G agrees with EPA's conclusion that it is difficult to establish a meaningful correlation between CO and organic HAP emissions from the ICR Data, P4G notes that Plant Washington's permit contains a BACT limit for CO of 0.10 lb/MMBTU, which must be monitored continuously using a Continuous Emissions Monitoring System (CEMS). Both CO and organic HAPs are the products of incomplete combustion in the boilers and the good combustion controls, as assured by the work practice standard proposed, serve to limit both CO and organic HAP emissions. Thus, while CO emissions may not be directly correlated with emissions of organic HAPs for the reasons explained above, the enforceable BACT limit for CO combined with the requirement of continuous monitoring provides additional assurance that Plant Washington will maintain good combustion practices in its coal-fired boiler.

*Relationship Between Plant Washington's Proposal and Judge Walker's Final Decision*

In the prior appeal of Plant Washington's Permit, the court concluded that the Permit's emission limitation for CO as a surrogate for non-dioxin/furan organic HAPs was not reflective of MACT. In this respect, the court reasoned that EPD improperly derived the CO permit limit of 0.10 lb/MMBTU from permitted emission limits from the best controlled similar source (Newmont), rather than the actual level of control achieved in practice.<sup>14</sup>

P4G's proposed work practice standard for non-dioxin/furan organic HAPs is consistent with the court's final decision. All parties to that proceeding, including the petitioners, have previously agreed that good combustion controls represent the best pollution control technology for organic HAPs.<sup>15</sup> Although the permit at issue in that appeal included a CO limit of 0.10 lb/MMBTU as a surrogate for organic HAPs, the decision to rely on a CO surrogate was predicated on the assumption that CO and organic HAP emissions are closely correlated. As the ICR Data and the Proposed EGU MACT demonstrate to the contrary, organic HAP production in modern, highly efficient boilers is extremely limited and it is not possible to derive a statistically significant correlation between organic HAP and CO emissions. Therefore, consistent with EPA's Proposed EGU MACT, Plant Washington no longer proposes to use a CO surrogate for non-dioxin/furan organic HAP emissions. Instead, Plant Washington will ensure the good combustion practices necessary to limit organic HAP emissions solely through use of the work practice standard contained in the Proposed EGU MACT.

For all these reasons, P4G concludes that the proposed work practice standard for non-dioxin/furan organic HAPs, which tracks EPA's Proposed EGU MACT for these pollutants, is MACT. P4G further concludes that this proposal addresses Judge Walker's concerns, and we urge EPD to approve the proposal in the form of an amended permit for Plant Washington.

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<sup>14</sup> *Fall-Line Alliance for a Clean Environment v. Barnes*, Docket No. OSAH-BNR-1031707-98-Walker, Final Decision at 25-29 (OSAH Dec. 16, 2010).

<sup>15</sup> *Fall-Line Alliance for a Clean Environment v. Barnes*, Docket No. OSAH-BNR-1031707-98-Walker, Final Decision at 21 (OSAH Dec. 16, 2010).

## **P4G's Revised Case-By-Case MACT Determination for Non-Mercury Metal HAPs**

### *Derivation of the MACT Floor*

In the Proposed EGU MACT, EPA established the MACT floor level for non-mercury metal HAPs based on the ICR Data. For some of the ICR test results, no individual test run data was available. Instead, the source only reported an average of several stack tests. Because variability could not be determined in those situations based on a single data point, EPA evaluated the next best controlled similar source where individual test run data was available.<sup>16</sup>

Once EPA had identified the best controlled similar source for a particular metal HAP, the agency incorporated data variability into determination of the MACT floor by determining the 99% Upper Prediction Limit (UPL) of the data set. This analysis used the Student t-test, which has been applied in other EPA regulatory actions (e.g., the Industrial Boiler MACT). EPA used this analysis method to derive a proposed emission limit for Total PM (per EPA Methods 5 and 202), and individual and total non-mercury metal HAPs (per Method 29). EPA established a best controlled similar source for each individual non-mercury metal HAP, total metal HAPs, and total PM.<sup>17</sup>

In the Proposed EGU MACT, EPA has offered three options or alternatives for demonstrating compliance with the non-mercury metal HAP limitations. These options are:

- 1) Demonstrate initial compliance with the surrogate Total PM limitation of 0.050 lb/MWh through stack testing.<sup>18</sup> Ongoing compliance is demonstrated through continuous emissions monitoring with a PM CEMS device measuring filterable PM, with the compliance limit for filterable PM derived by establishing an operating limit for filterable PM during the compliance test for total PM. The compliance average period for the CEMS measurements would be a 30-day rolling average.
- 2) Demonstrate initial and continuous compliance through stack testing for compliance with the established individual non-mercury metal HAP limits. Stack testing for individual non-mercury metal HAPs would be required every two months.
- 3) Demonstrate initial and continuous compliance through stack testing for compliance with the established total non-mercury metal HAPs emission limit. Stack testing for total non-mercury metal HAPs would be required every two months.<sup>19</sup>

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<sup>16</sup> Memo regarding development of the MACT floor for the proposed EGU MACT, dated March 16, 2011, from RTI International to EPA OAQPS, available at [http://www.epa.gov/ttn/atw/utility/pro/egu\\_mact\\_floor\\_memo\\_031611.pdf](http://www.epa.gov/ttn/atw/utility/pro/egu_mact_floor_memo_031611.pdf).

<sup>17</sup> Memo regarding development of the MACT floor for the proposed EGU MACT, dated March 16, 2011, from RTI International to EPA OAQPS, available at [http://www.epa.gov/ttn/atw/utility/pro/egu\\_mact\\_floor\\_memo\\_031611.pdf](http://www.epa.gov/ttn/atw/utility/pro/egu_mact_floor_memo_031611.pdf); Spreadsheet entitled "floor\_analysis\_coal\_pm\_031611.xlsx" available at <http://www.epa.gov/ttn/atw/utility/utilitypg.html>.

<sup>18</sup> For Plant Washington, 0.050 lb/MWh is approximately equal to 0.0056 lb/MMBTU.

<sup>19</sup> Proposed EGU MACT, proposed 40 C.F.R. § 63.1000(c)(1).

P4G has serious concerns about the achievability of the non-mercury metal HAP emission limits contained in the Proposed EGU MACT. MACT emission limits must be actually achievable in practice under the worst reasonably foreseeable circumstances.<sup>20</sup> P4G notes that the majority of sources in the ICR Data had actual non-mercury metal HAP emissions that far exceed the limits contained in the Proposed EGU MACT. It further notes that no boiler or air pollution control equipment vendor with whom its technical advisors have conferred are aware of any contract that has been written with a performance guarantee approaching the proposed emission limits. Finally, P4G notes that the Total PM surrogate emission limit of 0.050 lb/MWh contained in Alternative 1 is approximately 30% of Plant Washington's BACT Total PM limit of 0.018 lb/MMBtu. While P4G understands that its BACT emission limit does not define what an appropriate MACT emission limit should be, P4G is necessarily worried about being able to achieve such a low emission limit for Total PM on a continuous basis. At least one air pollution control equipment vendor has also noted that, while the Total PM limit in the proposed EGU MACT is based upon actual test results from a new unit, owners and operators may be unable to comply continuously with the proposed standard because any margin of compliance that may have existed between permit limits and measured emission rates has been effectively eliminated. P4G agrees with and shares this vendor's concerns.

These serious considerations notwithstanding, P4G understands that EPA's Proposed EGU MACT must be given strong weight in this case-by-case MACT determination and that it would be bound by any final source category MACT emission limits promulgated by EPA, even if those limits are lower than the limitation established by EPD on a case-by-case basis. Therefore, in light of these considerations and with the understanding that the Director would have discretion to amend P4G's final Permit in the event that EPA ultimately revises upward the emission limits contained in the Proposed EGU MACT, P4G has determined that, based on its analysis of the ICR Data and consultations with design experts in the field, Alternative 1 (the PM surrogacy option) should be employed at Plant Washington.

P4G has conferred with Fluor to determine what, if any, improvements could be made to Plant Washington's conceptual design to achieve a total PM emission limit of 0.050 lb/MWh. Fluor, after re-iterating its concerns that achieving such an emission rate on a continuous basis might be nearly impossible, nevertheless suggested several design element enhancements for the fabric filter (baghouse) that might improve the possibility of meeting this emission limit:

- 1) Use of state-of-the-art fabric filter bags (e.g. Teflon coated bags and/or pleated bags). Fabric filter bag technologies were evaluated and discussed within the Plant Washington PM<sub>2.5</sub> BACT analysis submitted in May 2009.<sup>21</sup> Use of state-of-the-art filter bags could, in theory, improve the PM capture efficiency of the control device because the coating on the surface of the bag (e.g. Teflon) reduces the pore size between fibers, thereby improving removal efficiency for smaller particles.

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<sup>20</sup> 40 C.F.R. § 63.43(d)(1); *Sierra Club v. EPA*, 167 F.3d 658, 665 (D.C. Cir. 1999).

<sup>21</sup> Available on Georgia EPD Air Protection Branch website at <http://www.georgiaair.org/airpermit/downloads/permits/psd/dockets/plantwashington/facilitydocs/additionalinfo051409.pdf>.

- 2) Ensure the baghouse design has a very conservative air-to-cloth ratio. The air to cloth ratio is the amount of flue gases (ft<sup>3</sup>/min) entering the baghouse divided by the total square feet of cloth in the baghouse. By maintaining a conservative air-to-cloth ratio, a sufficient ratio of air flow to filter media will be maintained, which should theoretically improve system collection efficiency.
- 3) Size ductwork and gas pathways to slow down the velocity of the flue gas. Slowing the velocity of the air flow should, in theory, improve the potential collection efficiency of the system.
- 4) Include in the design additional compartments for the baghouse system. This would provide for additional PM removal.

All of these changes will add complexity and cost to the air pollution controls that Plant Washington will require. Based upon initial estimates, P4G believes that these enhancements could add \$25 million to the initial cost of Plant Washington's air pollution control train, which already exceeds \$500 million. P4G also believes that the cost of maintaining the air pollution control train will rise as much \$1 million per year.

As specified in the Proposed EGU MACT, Plant Washington will demonstrate compliance for non-mercury metal HAPs through the PM surrogacy option, which will require the facility to conduct an initial compliance test for Total PM, per Method 5 and 202 (filterable and condensable PM). Plant Washington will also be required to conduct additional compliance stack tests once every 5 years.<sup>22</sup>

During compliance testing for total PM, the Proposed EGU MACT also requires that Plant Washington establish an ongoing operating limit for PM surrogacy. As EPA states:

For units combusting coal or solid oil-derived fuel and electing to use PM as a surrogate for non-Hg HAP metals, you must install, certify, and operate PM CEMS in accordance with Performance Specification (PS) 11 in Appendix B to 40 CFR part 60, and to perform periodic, ongoing quality assurance (QA) testing of the CEMS according to QA Procedure 2 in Appendix F to 40 CFR Part 60. You must determine an operating limit (PM concentration in mg/dscm) during performance testing for initial PM compliance. The operating limit will be the average of the PM filterable results of the three Method 5 performance test results. To determine continuous compliance, the hourly average PM concentrations will be averaged on a rolling 30 boiler operating day basis. Each 30 boiler operating day average would have to meet the PM operating limit.<sup>23</sup>

By adopting Alternative 1, Plant Washington will be required to maintain the particulate emissions concentration (mg/dscm) measured by the PM CEMS "at or below the highest 1-hour

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<sup>22</sup> Proposed EGU MACT, proposed 40 C.F.R. § 63.10006(a).

<sup>23</sup> Proposed EGU MACT, proposed 40 C.F.R. § 63.10011(d).

average measured during the most recent performance test demonstrating compliance with the total PM emissions limitation.”<sup>24, 25</sup>

P4G also notes that it will install and maintain a fabric filter bag leak detection system, which will ensure that Plant Washington’s main particulate emission control system is maintained and operated at a high level of efficiency. Because Plant Washington will demonstrate compliance with its MACT limits for non-mercury metal HAPs through the use of a PM CEMS, however, installation of the bag leak detection system will not be used to demonstrate compliance or for purposes of enforcing the MACT standards for non-mercury metal HAPs in Plant Washington’s Permit. P4G believes that this approach represents better reading of the Proposed EGU MACT and that it is consistent with EPA’s intent.<sup>26</sup>

The Proposed EGU MACT also establishes fuel sampling and testing requirements during compliance testing in Section 63.10008. Plant Washington proposes to conduct sampling and analysis per proposed EGU MACT Section 63.10008. Plant Washington will submit a testing plan to EPD no later than 60 days prior to demonstrating compliance.<sup>27</sup>

#### *Beyond the Floor*

When conducting a beyond the floor assessment, the maximum degree of reduction in emissions of the HAP are considered, but it is appropriate to take into account costs, energy, and other environmental impacts into consideration when doing so.<sup>28</sup> In the Proposed EGU MACT, EPA evaluated the possible use of additional air pollution controls, such as multiple fabric filter baghouses in series. EPA rejected the use of additional controls because the agency determined that the associated costs would be prohibitive.<sup>29</sup>

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<sup>24</sup> Proposed EGU MACT at 857, proposed 40 C.F.R. Part 63 Subpart UUUUU, Table 4. Although this portion of the Proposed EGU MACT may be in tension with the provision in Section 63.10011(d) of the proposed rule because it discusses highest 1-hr average instead of the average of the three Method 5 runs, it is consistent with EPA’s discussion regarding maintaining the PM concentration at or below the level measured during the most recent performance test. While EPA may clarify this provision when it publishes the final MACT standard for EGUs, P4G proposes to use the highest single test result to establish a 30-day rolling average operating limit for filterable PM.

<sup>25</sup> Presently, PM/PM<sub>10</sub> testing using EPA Method 5 and revised Method 202 would require each run to last a minimum of 2 hours, even though the methods call for 1-hour runs. Run time may be increased if the minimum detection of the analytical methods require it or if a specific sampling volume is required, which for Plant Washington should not be the case.

<sup>26</sup> Proposed EGU MACT at 858, proposed 40 C.F.R. Part 63 Subpart UUUUU, Table 4.

<sup>27</sup> As noted below, P4G believes that requiring fuel sampling for individual non-mercury metal HAPs is incongruous with use of the PM surrogacy option. As such, P4G requests that EPD not include such a fuel sampling requirement in the permit because compliance with the non-mercury metal HAPs standard will be through the use of the surrogate method.

<sup>28</sup> 40 C.F.R. § 63.43(d)(2).

<sup>29</sup> Proposed EGU MACT at 407.

EPA also investigated the possibility of fuel switching, such as the use of natural gas, as a beyond the floor option. As discussed in the Proposed EGU MACT, EPA determined that natural gas is not available at all locations or in sufficient quantities and thus, fuel switching to natural gas "would effectively prohibit new construction of coal-fired EGUs."<sup>30</sup> Accordingly, EPA rejected this approach as well and dropped the use of an alternative fuel from the agency's beyond-the-floor analysis.

P4G agrees with EPA's beyond the floor assessment that there are no emissions controls or monitoring provisions required beyond those established through the MACT floor assessment for non-mercury metal HAPs. Given the extensive, recently collected data in the ICR upon which EPA derived the MACT floor for new EGUs and the extremely low emission rates that EPA has proposed for the control of non-mercury metal HAPs, P4G concludes that any additional reduction in emissions would be cost-prohibitive and unlikely to yield meaningful emission reductions.

As noted above, based upon initial estimates, P4G believes that the enhancements needed to comply with the emission limits in the Proposed EGU MACT could add well over \$25 million to the initial cost of Plant Washington's air pollution control train baghouse. To increase costs above these already high levels without any assurance of meaningful emission reductions would be both wasteful and beyond the scope of state or federal law.

#### *Case-by-Case MACT Proposal for Non-Mercury Metal HAPs*

P4G proposes to demonstrate compliance with the case-by-case MACT for non-mercury metal HAPs as follows:

1. Compliance will be demonstrated through PM surrogacy with the Total PM emission limit of 0.050 lb/MWh. Compliance will be demonstrated through an initial stack test per EPA Method 5 and 202. An additional stack test for demonstration of compliance with the Total PM limit will be conducted at least once every five years.
2. During the initial stack test, the ongoing operating limitation for filterable PM will be established as the highest single test run reported in mg/dscm.<sup>31</sup>
3. Ongoing compliance through PM surrogacy will include use of PM CEMS, with compliance demonstrated with the filterable PM operating limit (concentration basis in mg/dscm) derived from the initial compliance test. Compliance with the derived filterable PM operating limit will be on a 30-day rolling average basis.
4. Plant Washington will develop a site specific fuel analysis plan for the facility as required by the Proposed EGU MACT Section 63.10008. The fuel analysis plan will be submitted

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<sup>30</sup> Proposed EGU MACT at 407-08.

<sup>31</sup> P4G notes that certain PM CEMS may measure particulate emissions in mg per "actual" cubic meter of gas (e.g., wet system (Sick Maihak FEW 200)). Because the particular PM CEMS unit has not been selected for Plant Washington, PM measures will be in the units reported by the device selected and installed.

EPD no later than 60 days prior to the initial compliance demonstration for non-mercury metal HAPs.<sup>32</sup>

5. Plant Washington will prepare and submit a compliance report to EPD on a semi-annual basis. This report will include:
  - a. Statement by a responsible official certifying the truth, accuracy, and completeness of the content of the report.
  - b. Date of the report and beginning and ending dates of the reporting period.
  - c. The total fuel use for the main facility boiler for each month within the semi-annual period.
  - d. A summary of the results of the performance stack tests conducted during the semi-annual period.
  - e. A statement of any deviations from compliance conditions such as emission limits or operating limits pertaining to non-mercury metal HAPs.<sup>33</sup>
6. Plant Washington will install a bag leak detection system to assure the proper and efficient operation of its particulate emission control equipment.

*Relationship Between Plant Washington's Proposal and Judge Walker's Final Decision*

In its final decision, the court concluded that the Permit's emission limitation for PM as a surrogate for non-mercury metal HAPs was not reflective of MACT. As with its decision relating to non-dioxin/furan organic HAPs, the court concluded that EPD erred by establishing the MACT limits based upon permitted emission limits from the best controlled similar source, rather than the actual level of control achieved in practice. P4G's proposal concerning non-mercury metal HAPs directly addresses this concern because it incorporates the limits established by EPA in the Proposed EGU MACT, which were based on the extensive actual emissions data collected through the ICR, as well as additional testing conducted by EPA's MPCRF.

As is discussed above, P4G has serious reservations concerning the achievability in practice of the emission limits EPA has proposed in the Proposed EGU MACT. Nevertheless, in light of EPA's determination in the Proposed EGU MACT that these emission limits are MACT, P4G requests that EPD amend its Permit consistent with the foregoing.

Attached to this letter are a set of suggested permit modifications for EPD's consideration.

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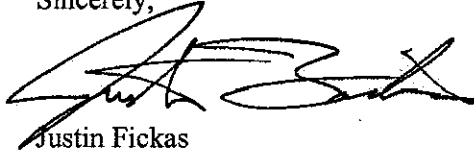
<sup>32</sup> The Proposed EGU MACT seems to require fuel sampling even when the surrogate approach for metal HAPs compliance is followed. P4G believes that this is an incongruous result, and requests that EPD consider omitting such a requirement from the revised permit.

<sup>33</sup> Proposed EGU MACT, proposed 40 C.F.R. § 63.10031.

Mr. Jac Capp  
April 18, 2011  
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Thank you in advance for your review of this submission. If you have any questions, please feel free to contact Justin Fickas at 678-441-9977 or Ken Hiltgen at 770-421-3334.

Sincerely,



Justin Fickas  
Managing Consultant



Ken Hiltgen  
Project Manager

Attachments

cc: Ms. Anna Aponte (with Attachments)  
Mr. C. Dean Alford (with Attachments)

## **ATTACHMENTS**

## **Attachment A**

### **Current Permit Conditions Pertaining to Case-by-Case MACT Provisions for Organic HAPs and Non-Mercury Metal HAPs**

- 2.5 The Permittee shall install and operate, as BACT for CO and BACT and MACT for VOC on Coal Fired Boiler S1, good combustion controls.  
[40 C.F.R. 52.21(j) and 40 C.F.R. 63 Subpart B]
- 2.8 The Permittee shall install and operate, as BACT for PM/PM<sub>10</sub> and as MACT for Filterable PM, a Fabric Filter Baghouse and as BACT for PM<sub>2.5</sub>, a Fabric Filter Baghouse, a Duct Sorbent Injection System and good combustion controls on Coal Fired Boiler S1.  
[40 C.F.R. 52.21(j) and 40 C.F.R. 63 Subpart B]
- 2.13 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from Coal Fired Boiler S1, any gases which
- b. Contain Carbon Monoxide (CO) in excess of 0.10 lb/MMBtu on a 30-day rolling average.  
[~~40 C.F.R. 63 Subpart B~~ and 40 C.F.R. 52.21(j)]
  - a. Contain Filterable PM/PM<sub>10</sub> in excess of 0.010 lb/MMBtu on a 24-hour rolling average.  
[~~40 C.F.R. 63 Subpart B~~; 40 C.F.R. 52.21(j); 391-3-1-.02(2)(d)(2) (subsumed) and 40 C.F.R. 60.42Da(c) (subsumed)]
  - b. Contain Total PM/PM<sub>10</sub> in excess of 0.018 lb/MMBtu on a 3-hour average and Total PM<sub>2.5</sub> in excess of 0.0123 lb/MMBtu on a 3-hour average.  
[40 C.F.R. 52.21(j)]
- 5.2 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record the indicated pollutants on the following equipment. Each system shall meet the applicable performance specification(s) of the Division's monitoring requirements.
- d. A Continuous Emissions Monitoring System (CEMS) for measuring CO emissions discharged to the atmosphere from the Coal Fired Boiler, S1. The 1-hour average CO emissions rates shall also be recorded in pound per million Btu heat input.  
[40 C.F.R. 52.21; ~~40 C.F.R. 63 Subpart B~~ and 391-3-1-.02(6)(b)1]
- 6.2 The methods for the determination of compliance with emission limits listed under Section 2.0 are as follows:
- t. Compliance with the CO limit in Condition 2.13.c shall be determined using the CEMS required by Condition 5.2.  
[~~40 C.F.R. 63 Subpart B~~ 40 C.F.R. 52.21 and 391-3-1-.02(6)(b)1]

- u. Compliance with the filterable PM limit in Condition 2.13.d shall be determined using the CEMS required by Condition 5.2.

[~~40 C.F.R. 63 Subpart B~~ 40 C.F.R. 52.21; 40 C.F.R. 60.48Da(p) and 391-3-1-.02(6)(b)1]

- 7.7 The Permittee shall determine compliance with the PM Filterable emissions limitations in Condition No. 2.13.d using emissions data acquired by the PM CEMS. The 24-hour rolling average shall be determined as follows:

[~~40 C.F.R. 63 Subpart B~~ 40 C.F.R. 52.21 and 391-3-1-.02(6)(b)1]

- a. After the first 24-hour average, a new 24-hour rolling average shall be calculated after each operating hour.

These records (including calculations) shall be maintained as part of the monthly records suitable for inspection or submittal.

- 7.8 The Permittee shall determine compliance with the CO emissions limitations in Condition No. 2.13.b and c using emissions data acquired by the CO CEMS. The 1-hour average and 30-day rolling average shall be determined as follows:

[~~40 C.F.R. 63 Subpart B~~ 40 C.F.R. 52.21 and 391-3-1-.02(6)(b)1]

- a. After the first 1-hour average, a new 1-hour average shall be calculated after each operating hour.
- b. The 30-day average shall be the average of all valid hours of CO emissions data for any 30 successive operating days.
- c. After the first 30-day average, a new 30-day rolling average shall be calculated after each operating day.
- d. For the purpose of this Permit, an operating day is a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time. It is not necessary for the fuel to be combusted continuously for the entire 24-hour period.

These records (including calculations) shall be maintained as part of the monthly record suitable for inspection or submittal.

- 7.21 The Permittee shall furnish the Division written notification as follows:

[40 C.F.R. 63 Subpart B; 40 C.F.R. 52.21 and 40 C.F.R. 60.7]

- a. A notification of the date of construction of the Coal Fired Boiler S1, Auxiliary Boiler S45, and the Coal Handling Particulate Sources (Emission Units A4, A6 to A9, S40, S41, S46 and S47), is commenced postmarked no later than 30 days after such date.
- b. A notification of the actual date of initial startup of the Coal Fired Boiler S1, Auxiliary Boiler S45, Coal Handling Particulate Sources (Emission Units A4, A6 to A9, S40, S41, S46 and S47) and Limestone Management Particulate Sources (Emission Units

A5, A10, S42 and S48), postmarked within 15 days after such date. For purposes of this permit, "startup" shall mean the setting in operation of an affected facility for any purpose.

- c. Certification that a final inspection has shown that construction of the Coal Fired Boiler S1 has been completed in accordance with the application, plans, specifications and supporting documents submitted in support of this permit. The certification shall be included with the notification in paragraph (b).

## **Attachment B**

### **New Proposed Permit Conditions for the Revised Case-by-Case MACT Analysis**

2.13 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from Coal Fired Boiler S1, any gases which

- s. Contain Total PM in excess of 0.050 lb/MWh on a 3-hour average.  
[40 C.F.R. 63 Subpart B]

5.10 Install and operate a bag leak detection system.

6.3 Within 60 days after achieving the maximum production rate on each coal type (subbituminous coal and a 50/50 blend of sub-bituminous and bituminous coal) in Coal Fired Boiler S1, but not later than 180 days after the initial startup of the boiler, the Permittee shall conduct the following performance tests and furnish to the Division a written report of the results of such performance tests:

- i. Performance test on Coal Fired Boiler S1, for total PM to verify compliance with Condition 2.13.s.
- j. In addition to the initial performance test, the Permittee shall conduct a performance test as specified in Condition 6.3.i on a 5-year basis.

6.13 An operating limit for demonstrating ongoing compliance with the emissions limits for non-mercury metal HAPs will be established during performance testing for initial PM compliance. The operating limit will be the highest of the PM filterable results (mg/dscm concentration basis) of the three Method 5 performance test results required by Condition 2.13(s).

7.27 The facility will implement a work practice standard for non-dioxin organic HAP emissions to be conducted annually, unless otherwise specified, as follows;

- a. Inspect the burners, and clean or replace any components of the burner as necessary (burner inspection can be delayed until the next scheduled unit shutdown, but each burner will be inspected at least once every 18 months).
- b. Inspect the flame pattern, as applicable, and make any adjustments to the burner necessary to optimize the flame pattern. The adjustment will be consistent with the manufacturer's specifications.
- c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly.
- d. Optimize total emissions of CO and NOx. This optimization will be consistent with the manufacturer's specifications and the emission limits established in 2.13.
- e. Measure the concentration in the effluent stream of CO and NOx in ppm, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
- f. Maintain on-site and submit, if requested by the EPD, an annual report containing the information as follows;

1. The concentrations of CO and NO<sub>x</sub> in the effluent stream in ppm by volume, and oxygen in volume percent, measured before and after the adjustments of the main boiler.
  2. A description of any corrective actions taken as a part of the combustion adjustment.
  3. The type and amount of fuel used over the 12 months prior to an adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period.
- 7.28 A site specific fuel analysis plan will be developed for the facility per Proposed EGU MACT section §63.10008, and submitted to the Georgia EPD. The fuel analysis plan will be submitted no later than 60 days prior to the initial compliance demonstration for non-mercury metal HAPs.
- 7.29 Site specific fuel analysis will be conducted for each type of fuel burned during each compliance stack test conducted by the facility. Analysis will not be conducted for fuels used only for startup, unit shutdown, or transient flame stability purposes.
- 7.30 The Permittee shall determine compliance with the PM Filterable emissions limitations established in Condition No. 6.13 using emissions data acquired by the PM CEMS. The 30-day rolling average shall be determined as follows:
- a. The 30-day average shall be the average of all valid hours of filterable PM emissions data for any 30 successive operating days.
  - b. After the first 30-day average, a new 30-day rolling average shall be calculated after each operating day.
  - c. For the purpose of this Permit, an operating day is a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time. It is not necessary for the fuel to be combusted continuously for the entire 24-hour period.
- These records (including calculations) shall be maintained as part of the monthly record suitable for inspection or submittal.
- 7.31 The permittee shall submit a written report containing the following information for each semiannual period ending June 30 and December 31 of each year. All reports shall be postmarked by the 30<sup>th</sup> day following the end of each reporting period, July 30 and January 30, respectively. Reporting required by this condition shall begin at the end of the semiannual period in which initial startup is completed.
- a. A summary of the results of the performance stack tests conducted for compliance with 2.13.s or 2.13.t.
  - b. The total fuel use for coal fired boiler S1 during the reporting period.
  - c. A statement of any deviations from compliance conditions such as emission limits or operating limits pertaining to non-mercury metal HAPs.
- 8.3 Notwithstanding any provision of this Permit to the contrary, the emission limits established by the permittee's Case-by-Case MACT in Condition Nos. 2.13(s) and/or other associated provisions may be amended as provided in 40 C.F.R. §63.44(c).